

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Original) A fuel cartridge, comprising:
a fuel reservoir;
a reaction chamber;
an open region that connects the fuel reservoir to the reaction chamber;
and
a passive structure located within the open region adapted to resist fluid flow from the fuel reservoir to the reaction chamber.

2. (Original) A fuel cartridge as claimed in claim 1, further comprising:
a fuel containing substance within the fuel reservoir.

3. (Original) A fuel cartridge as claimed in claim 2, wherein the fuel containing substance comprises sodium borohydride.

4. (Original) A fuel cartridge as claimed in claim 1, wherein the reaction chamber includes an inlet operably connected to the fuel reservoir and a gas outlet.

5. (Previously Presented) A fuel cartridge as claimed in claim 4, further comprising:
a byproduct reservoir including a liquid inlet;
wherein the reaction chamber includes a liquid outlet operably connected to the byproduct reservoir liquid inlet.

6. (Original) A fuel cartridge as claimed in claim 5, further comprising:
a substantially gas permeable/substantially liquid impermeable structure separating the reaction chamber liquid outlet from the reaction chamber gas outlet.
7. (Original) A fuel cartridge as claimed in claim 1, wherein the open region is defined by a tubular member.
8. (Original) A fuel cartridge as claimed in claim 1, wherein the passive structure creates capillary forces that resist fluid flow.
9. (Original) A fuel cartridge as claimed in claim 1, wherein the passive structure comprises a porous structure.
10. (Withdrawn) A fuel cartridge as claimed in claim 1, wherein the passive structure comprises a plurality of capillaries.
11. (Withdrawn) A fuel cartridge as claimed in claim 10, wherein the plurality of capillaries are substantially axially aligned with one another.
12. (Previously Presented) A fuel cartridge, comprising:
a fuel reservoir including a fuel containing substance;
a reaction chamber including an inlet, a gas outlet, a catalyst and a substantially gas permeable/substantially liquid impermeable structure separating the inlet from the gas outlet;
an open region that connects the fuel reservoir to the reaction chamber;
and
a passive structure located within the open region adapted to create capillary forces to resist flow of the fuel containing substance from the fuel reservoir to the reaction chamber.

13. (Previously Presented) A fuel cartridge as claimed in claim 12, further comprising:

a byproduct reservoir including a liquid inlet;

wherein the reaction chamber includes a liquid outlet operably connected to the byproduct reservoir liquid inlet.

14. (Original) A fuel cartridge as claimed in claim 12, wherein the fuel containing substance comprises sodium borohydride.

15. (Original) A fuel cartridge as claimed in claim 12, wherein the passive structure comprises a porous structure.

16. (Withdrawn) A fuel cartridge as claimed in claim 12, wherein the passive structure comprises a plurality of capillaries.

17. (Withdrawn) A fuel cartridge as claimed in claim 16, wherein the plurality of capillaries are substantially axially aligned with one another.

18. (Previously Presented) A fuel cartridge, comprising:

a fuel reservoir;

a reaction chamber;

an open region that connects the fuel reservoir to the reaction chamber;
and

control means, associated with the open region, for passively resisting fluid flow from the fuel reservoir to the reaction chamber and permitting fluid flow from the fuel reservoir to the reaction chamber in response to the presence of a predetermined pressure gradient across the control means.

19. (Original) A fuel cartridge as claimed in claim 18, further comprising:

a fuel containing substance within the fuel reservoir.

20. (Original) A fuel cartridge as claimed in claim 18, wherein the reaction chamber includes an inlet operably connected to the fuel reservoir and a gas outlet.

21. (Previously Presented) A fuel cartridge as claimed in claim 20, further comprising:

a byproduct reservoir including a liquid inlet;

wherein the reaction chamber includes a liquid outlet operably connected to the byproduct reservoir liquid inlet.

22. (Previously Presented) A fuel cartridge, comprising:

a fuel reservoir; and

a reaction chamber including a catalyst, an inlet operably connected to the fuel reservoir, a gas outlet, means, that is not in fluid communication with the fuel reservoir, for letting liquid out of the reaction chamber, and a substantially gas permeable/substantially liquid impermeable structure separating the inlet from the gas outlet.

23. (Original) A fuel cartridge as claimed in claim 22, further comprising:

a fuel containing substance within the fuel reservoir.

24. (Original) A fuel cartridge as claimed in claim 23, wherein the fuel containing substance comprises sodium borohydride.

25. (Previously Presented) A fuel cartridge as claimed in claim 22, further comprising:

a byproduct reservoir including a liquid inlet;

wherein the reaction chamber means for letting liquid out of the reaction chamber is operably connected to the byproduct reservoir liquid inlet.

26. (Original) A fuel cartridge as claimed in claim 22, wherein the reaction chamber comprises an external housing and the substantially gas permeable/substantially liquid impermeable structure comprises an enclosed structure, an inlet operably connected to the fuel reservoir, and a liquid outlet.

27. (Previously Presented) A fuel cartridge as claimed in claim 26, wherein the reaction chamber external housing includes an inner surface, the enclosed substantially gas permeable/substantially liquid impermeable structure includes an outer surface, and a space is defined between the inner surface of the reaction chamber external housing and the outer surface of the enclosed substantially gas permeable/substantially liquid impermeable structure that is in communication with the reaction chamber gas outlet.

28. (Original) A fuel cartridge as claimed in claim 22, wherein the substantially gas permeable/substantially liquid impermeable structure comprises a porous hydrophobic membrane structure.

29. (Original) A fuel cartridge as claimed in claim 22, wherein the catalyst comprises a plurality of porous elements coated with catalyst material.

30. (Original) A fuel cartridge as claimed in claim 22, wherein the catalyst comprises a transition metal.

31-52. (Canceled)

53. (Previously Presented) A fuel cartridge as claimed in claim 1, wherein the passive structure is configured to prevent fluid from entering the reaction chamber in the absence of a predetermined pressure gradient across the passive structure.

54. (Previously Presented) A fuel cartridge as claimed in claim 12, wherein the passive structure is configured to prevent fluid from entering the reaction chamber in the absence of a predetermined pressure gradient across the passive structure.

55. (Currently Amended) A fuel cartridge, comprising:

a cartridge housing;

a fuel reservoir;

a reaction chamber, defining an interior surface, a fuel inlet and only one gas outlet, located within the cartridge housing;

an enclosed substantially gas permeable/substantially liquid impermeable structure defining an interior operably connected to the fuel inlet and an exterior surface and located within the reaction chamber such that a gap extends around the exterior surface from the exterior surface to the interior surface of the reaction chamber and the gap is in gaseous communication with the only one gas outlet of the reaction chamber; and chamber;

a catalyst located within the interior of the enclosed substantially gas permeable/substantially liquid impermeable structure; and

a fuel reservoir, located within the cartridge housing and outside the reaction chamber, operably connected to the reaction chamber fuel inlet.

56. (Previously Presented) A fuel cartridge as claimed in claim 55, further comprising:

a fuel containing substance within the fuel reservoir.

57. (Currently Amended) A fuel cartridge as claimed in claim 56, wherein the fuel-containing substance comprises, comprising:

a fuel reservoir;

sodium borohydride within the fuel reservoir;

a reaction chamber defining an interior surface, a fuel inlet and only one gas outlet;

an enclosed substantially gas permeable/substantially liquid impermeable structure defining an interior operably connected to the fuel inlet and an exterior surface and located within the reaction chamber such that a gap extends around the exterior surface from the exterior surface to the interior surface of the reaction chamber and the gap is in gaseous communication with the only one gas outlet of the reaction chamber; and

a catalyst located within the interior of the enclosed substantially gas permeable/substantially liquid impermeable structure.

58. (Currently Amended) A fuel cartridge as claimed in claim 55, further comprising:

a byproduct reservoir including a liquid inlet located within the cartridge housing and outside the reaction chamber;

wherein the enclosed substantially gas permeable/substantially liquid impermeable structure includes a liquid outlet operably connected to the byproduct reservoir liquid inlet.

59. (Currently Amended) A fuel cartridge as claimed in claim 55 claim 58, wherein the fuel reservoir and byproduct reservoir comprises separate structural elements.

60. (Previously Presented) A fuel cartridge as claimed in claim 55, wherein the substantially gas permeable/substantially liquid impermeable structure comprises a porous hydrophobic membrane structure.

61. (Previously Presented) A fuel cartridge as claimed in claim 55, wherein the catalyst comprises a plurality of porous elements coated with catalyst material.

62. (Previously Presented) A fuel cartridge as claimed in claim 55, wherein the catalyst comprises a transition metal.